

Amendments to the Claims:

Please amend the claims as follows:

1-53. (canceled)

54. (currently amended) A method for altering the amino acid composition of a native protein of interest, said method comprising:

- a) introducing amino acid changes into said protein to create an engineered protein, wherein [[:
- a)]] said amino acid changes alter the amino acid content of said protein by at least 10%; and
- b) determining whether said engineered protein has the conformation of the native protein [[: and
- c) said conformation of the engineered protein is confirmed]] by binding said engineered protein with a set of interacting molecules capable of binding with the native protein, wherein said molecules recognize native conformation.

55. (previously presented) The method of Claim 54, wherein said interacting molecules are antibodies.

56. (previously presented) The method of Claim 55, wherein said antibodies are monoclonal antibodies.

57. (currently amended) The method of Claim 54 wherein said interacting molecules are proteins that form homodimers or heterodimers with said native protein of interest, ~~wherein~~ said ~~proteins~~ and are not antibodies..

58. (currently amended) A method for altering the amino acid composition of a vegetative storage protein, said method comprising:

- a) introducing amino acid changes into said protein to create an engineered protein, wherein[[:

- a))] said amino acid changes alter the ~~amino acid~~ content of nutritionally essential amino acids in said protein by at least 10%; 5%; and
- b) determining whether said engineered protein has the conformation of the native protein [[:
- c) said conformation of the engineered protein is confirmed]] by binding said engineered protein with a set of interacting molecules capable of binding with the native protein[[:]] , wherein
- d) said interacting molecules recognize native conformation and are proteins that form homodimers or heterodimers with said native protein of interest[[:]] and wherein said interacting molecules are not antibodies.

59. (canceled)

60. (previously presented) The method of Claim 58, wherein said amino acid changes comprise increasing the levels of methionine.

61. (previously presented) The method of Claim 58, wherein said amino acid changes are introduced into predetermined sites.

62. (previously presented) The method of Claim 61, wherein said predetermined sites are determined using secondary structure prediction or homology comparison.

63. (previously presented) The method of Claim 58, wherein said amino acid changes are introduced at random.

64. (currently amended) The method of Claim ~~62~~ 63, wherein said amino acid changes are produced by mutagenic PCR[[:]] or DNA shuffling, wherein said mutagenic PCR or DNA shuffling is optionally used in combination with ~~or~~ phage display methodology.

65. (currently amended) The method of Claim 64, wherein it is determined whether said engineered protein ~~is confirmed as having~~ has the conformation of said native protein by filter lift assay or ELISA.

66. (canceled)

67. (currently amended) The method of Claim 58, wherein said amino acid changes increase the content of nutritionally essential amino acids ~~are increased~~ to represent at least 20% 10% of the total amino acid content of the protein.

68. (currently amended) The method of Claim ~~58~~ 54, wherein said protein is vegetative storage protein.

69. (currently amended) A method for altering the amino acid composition of a native protein of interest, said method comprising: a) introducing amino acid changes into said protein to create an engineered protein having increased nutritional value, wherein[[:

a)]] said amino acid changes increase levels of at least one nutritionally essential amino acid in the engineered protein[[:]] so that

~~b) said nutritionally essential amino acid or~~ nutritionally essential amino acids are increased to represent at least ~~10%~~ 5% of the total amino acid content of the engineered protein; and

b) e) determining whether said engineered protein has the conformation of the native protein[[:

d) said conformation of the engineered protein is confirmed]] by binding said engineered protein with a set of interacting molecules capable of binding with the native protein[[: and]] , wherein

[[e)]] said molecules recognize native conformation.

H
contd

70. (previously presented) The method of Claim 69, wherein said interacting molecules are antibodies.

71. (previously presented) The method of Claim 70, wherein said antibodies are monoclonal antibodies.

72. (currently amended) The method of Claim 69 wherein said interacting molecules are proteins that form homodimers or heterodimers with said native protein of interest and are not antibodies.

73. (canceled)

74. (canceled)

75. (previously presented) The method of Claim 69, wherein at least one of said at least one nutritionally essential amino acid or nutritionally essential amino acids is methionine.

76. (previously presented) The method of Claim 69, wherein said amino acid changes are introduced into predetermined sites.

77. (previously presented) The method of Claim 76, wherein said predetermined sites are determined by secondary structure prediction or homology comparison.

78. (previously presented) The method of Claim 69, wherein said amino acid changes are introduced at random.

79. (currently amended) The method of Claim ~~69~~ 78, wherein said amino acid changes are produced by mutagenic PCR[~~[,]~~] or DNA shuffling, ~~or~~ wherein said mutagenic PCR or DNA shuffling is optionally used in combination with phage display methodology.

HI
contd

80. (previously presented) The method of Claim 79, wherein it is determined whether said engineered protein ~~is confirmed as having~~ has the conformation of said native protein by filter lift assay or ELISA.

81. (canceled)

82. (currently amended) The method of Claim 69, wherein said nutritionally essential amino acids are increased to represent at least 20% 10% of the total amino acid content of the protein.

83 - 96. (canceled)

97. (currently amended) A method for altering the amino acid composition of a vegetative storage protein, said method comprising:

a) introducing amino acid changes into said protein to create an engineered protein, wherein[[:

a)] said amino acid changes alter the amino acid content of said protein by at least ~~10%~~ 5%; and

b) determining whether said engineered protein ~~as~~ has the conformation of a native vegetative storage protein[[: and

c) said conformation of the engineered protein is confirmed]] by binding with a panel of monoclonal antibodies which recognize the native protein conformation and are capable of binding said native vegetative storage protein.

98. (currently amended) The method of Claim 97, wherein said amino acid changes ~~are made to increase the level~~ levels of at least one nutritionally essential amino acid ~~acids~~ in the engineered protein.

H
cont'd

99. (currently amended) The method of Claim 97, wherein said amino acid changes comprise substitutions ~~rather than deletions or additions~~.

100. (previously presented) The method of Claim 98, wherein said amino acid changes comprise increasing the level of methionine.

101. (previously presented) The method of Claim 97, wherein said amino acid changes are introduced into predetermined sites.

102. (previously presented) The method of Claim 101, wherein said predetermined sites are determined by secondary structure prediction or homology comparison.

103. (previously presented) The method of Claim 97, wherein said amino acid changes are introduced at random.

104. (currently amended) The method of Claim 103, wherein said amino acid changes are produced by mutagenic PCR[,] or DNA shuffling, wherein said mutagenic PCR or DNA shuffling is optionally used in combination with ~~or~~ phage display methodology.

105. (currently amended) The method of Claim 104, wherein it is determined whether said engineered protein ~~is confirmed as having~~ has the conformation of said native protein by filter lift assay or ELISA.

106 -118. (canceled)

119. (previously presented) The method of claim 57, wherein said native protein of interest is VSP α or VSP β and said proteins that form homodimers or heterodimers with said native protein of interest are VSP α or VSP β .

120. (previously presented) The method of Claim 54, wherein said amino acid changes are introduced into predetermined sites.

121. (previously presented) The method of Claim 120, wherein said predetermined sites are determined using secondary structure prediction or homology comparison.

122. (previously presented) The method of Claim 54, wherein said amino acid changes are introduced at random.

123. (currently amended) The method of Claim 122, wherein said amino acid changes are produced by mutagenic PCR, DNA shuffling, or phage display methodology.

124. (currently amended) The method of Claim 123, wherein it is determined whether said engineered protein ~~is confirmed as having~~ has the conformation of said native protein by filter lift assay or ELISA.

125. (new) The method of claim 97, wherein said amino acid changes alter the amino acid content of said protein by at least 10%.

H
could